

May 20, 2002

EX PARTE

Marlene H. Dortch, Secretary
Federal Communications Commission
The Portals Building
445 12th Street, SW TW-A325
Washington, D.C. 20554

Re: ET Docket 01-278
RM-9375; RM-10051

Dear Ms. Dortch:

On May 17, 2002, individuals representing Hughes Network Systems, Inc. (Joslyn Reed, Tom Jackson, Chris Hofer, and John Janka), PanAmSat Corporation (Joseph Godles), the Satellite Industry Association (Richard DalBello), SES Americom, Inc. (Nancy Eskenazi), and Spacenet, Inc. (Rosalind Allen) met with Julius Knapp, Karen Rackley and Ira Keltz of the Office of Engineering & Technology and with Bob Nelson of the International Bureau concerning the above-referenced proceeding. The attached document was presented and discussed at the meeting. The parties also asked that the Commission attempt to find an expeditious means for implementing relief that will protect satellite earth stations from interference caused by radar detectors.

Sincerely,

/s/ Joseph A. Godles

Joseph A. Godles
Attorney for PanAmSat Corporation

Attachment

cc: Julius Knapp
Karen Rackley
Ira Keltz
Bob Nelson

Satellite Industry Association and Spacenet

Part 15 NPRM on Radar Detector Interference to Satellite Earth Stations

HUGHES
NETWORK SYSTEMS

SES AMERICOM
An SES GLOBAL Company

 **PanAmSat**

LORAL
Space & Communications

TRW



Friday, May 17, 2002

Questions

- ◆ How close does a radar detector typically get to a VSAT installation?
- ◆ What is the appropriate value of C/I for calculating the electric field intensity of the radar detector?
- ◆ How long has the Cobra 9220 been on the market?

Distance

- ◆ Most installations are within 10 m
 - Antenna on the building
- ◆ Significant number of installations are within 5 m
 - Antenna on the awning
- ◆ A few installations are at 3 m
 - Antenna on a pole

Appropriate C/I

- ◆ C/I is based upon the C/N threshold requirement and the minimum clear sky margin
- ◆ C/N threshold depends upon:
 - Modulation
 - Coding
- ◆ Two types of carriers deployed in the US
 - Wideband carrier
 - Narrowband carrier

Wideband Carrier

- ◆ Characteristics
 - Viterbi Rate 2/3, QPSK, DVB standard, 2.5 – 30 Msymbols
- ◆ C/N threshold = 5.9 dB
- ◆ Minimum clear sky margin = 1 dB
- ◆ C/N available = C/N threshold + clear sky = 6.9 dB
- ◆ C/I = C/N available \Rightarrow C/N threshold = 12.8 dB
- ◆ Lab results support these calculations

Narrowband Carrier (case 1)

- ◆ Characteristics
 - $\frac{1}{2}$ FEC, BPSK, 512 Kbps
- ◆ C/N threshold = 2.7 dB
- ◆ Minimum clear sky margin = 1 dB
- ◆ C/N available = C/N threshold + clear sky = 3.7 dB
- ◆ C/I = C/N available \Rightarrow C/N threshold = 9.5 dB
- ◆ Lab results support these calculations

Narrowband Carrier (case 2)

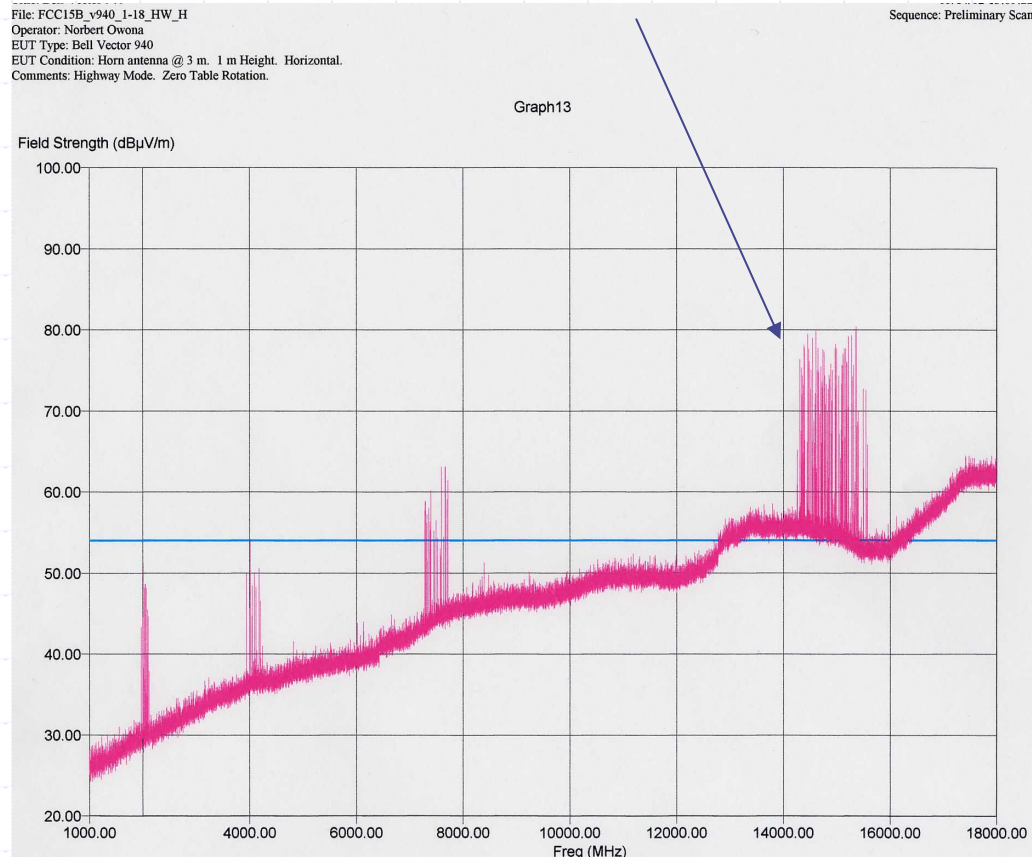
- ◆ Characteristics
 - 7/8 FEC, QPSK, 64 Kbps
- ◆ C/N threshold = 10.2 dB
- ◆ Minimum clear sky margin = 1 dB
- ◆ C/N available = C/N threshold + clear sky = 11.2 dB
- ◆ $C/I = C/N \text{ available} \Rightarrow C/N \text{ threshold} = 17.0 \text{ dB}$
- ◆ Lab results support these calculations

Cobra Electronics

- ◆ Cobra Electronics indicates model 9220 has been in the market since August 9, 2000.
- ◆ New model 9210 released April, 2002.

EMI Scan from 1 GHz to 18 GHz of Beltronics Radar Detector Model Vector 640 on consumer market since 3/02

Spurious energy now in upper portion of Ku Band FSS uplink



Radar detector emissions detected in the Ku-Band FSS uplink allocation

Electric Field Strength at 3m

Frequency (GHz)	Beltronics Vector 940
	E_Horizontal (uV/m)
14.277	8453
14.296	4672
14.344	5309
14.355	4335
14.356	3003
14.389	5801
14.421	2399
14.424	3936
14.448	3491
14.452	2116
14.479	2369
14.485	7055
14.506	7603

Conclusion

- ◆ Recommended assumed minimum distance between VSAT and interfering radar detector
 - 5 m or less
- ◆ Appropriate C/I
 - $C/I \text{ required} = C/N \text{ threshold} + 5.8 \text{ dB}$
- ◆ Protection needed for all satellite bands, including 10.7-12.7 GHz band
- ◆ Cobra 9220 on the market since August 9, 2000
- ◆ At least one model emits energy in the 14.0-14.5 GHz band.